38795

PUBLIC PARTICIPATION

38795

Superfund Proposed Plan

Pulverizing Services Site

Moorestown, Burlington County, New Jersey

EPA

Region 2 — *January, 1999*

MARK YOUR CALENDAR

January 19 - February 19, 1999: Public Comment period on the Proposed Plan for the Pulverizing Services Site.

Wednesday, January 27, 1999, 7:00pm: Public Meeting at 111 West Street, in Moorestown, NJ.

PURPOSE OF PROPOSED PLAN

This Proposed Plan describes the response measures that the U.S. Environmental Protection Agency (EPA) considered in addressing the soil contamination at the Pulverizing Services Site (Site) located in Moorestown, New Jersey. This document, which was developed by EPA, identifies EPA's preferred remedial response measure and the rationale for this preference. The response measures summarized here are described in greater detail in the Response Measures Evaluation Report, which is now available at the Library in Moorestown, New Jersey.

Response measure 4A is EPA's preferred response measure for contaminated soil. This response measure provides for: Excavation of Site soils and former disposal trench materials that contain concentrations of the chemicals of concern in excess of cleanup levels developed for protection of Site workers. Excavated soils with low contaminant concentrations would be sent to an off-site landfill. Highly contaminated soils would be sent off-site to either a low temperature thermal desorption (LTTD) facility, or a Resource Conservation and Recovery Act (RCRA) permitted off-site incinerator, depending on whether they are determined to be RCRA hazardous wastes. Soils treated at the LTTD facility may be transported back to the Site for use as backfill. Groundwater contamination will be addressed in a future action.

EPA encourages the public to review and comment on all of the response measures considered by EPA in this Proposed Plan. The remedy described in this Proposed Plan is EPA's preferred remedy for the Site. Changes to the preferred remedy or a change from the preferred remedy to another remedy may be made if public comments or additional data indicate that such a change will result in a more appropriate remedy. EPA will select the remedy after taking all public comments into consideration.

Community Role in Selection Process

The U.S. Environmental Protection Agency (EPA) relies on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each site. To this end, the Investigation Reports, the Response Measures Evaluation Report (RME), Proposed Plan, and supporting documentation have been made available to the public for a public comment period which begins on January 18, 1999 and concludes on February 18, 1999.

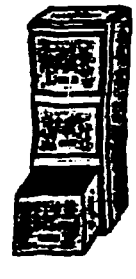
A public meeting will be held during the public comment period in the court room at 11 West Street in Moorestown, NJ, on January 27, 1999 at 7:00 PM to present the conclusions of the Site investigation and to elaborate further on the reasons for recommending the preferred remedial response measure, and to receive public comments.

Comments received at the public meeting, as well as written comments, will be documented in the Responsiveness Summary Section of the Record of Decision (ROD), the document which formalizes the selection of the remedy. All written comments should be addressed to:

John Osolin
Project Manager
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, NY 10007

Copies of the Investigation Reports, the Response Measures Evaluation Report, Proposed Plan, and supporting documentation are available at the following repositories:

Burlington County Library
5 Pioneer Blvd.
Westampton, NJ
08060



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and

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EPA will select a remedy for the Site only after the public comment period has ended and the information submitted during that time has been reviewed and considered. EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, and Section 300.430(f) of the National Contingency Plan (NCP).

SITE BACKGROUND

Location

The Pulverizing Services Site is comprised of approximately 24 acres located in an industrial park at 332 New Albany Road in Moorestown, Burlington County, New Jersey. A Site Location Map is presented as Figure 1. A Site Layout Map is presented in Figure 2. The Site is located 3/4-mile east of the North Branch of the Pennsauken Creek. An unnamed creek is located approximately 3/4-mile east of the Site. Land use immediately adjacent to the Site is comprised of commercial, light industrial, and residential areas as follows:

North-West - The Site is bounded to the north by Crider Avenue, across which is located a manufacturing facility;

South-East - The Site is bounded to the south by railroad tracks (owned by BB&O), across which are located several residences;

North-East - The Site is bounded to the east by active industrial facilities; and

South-West - The Site is bounded to the west by active residential, commercial, and industrial properties.

Based on land use and location, the entire Site has been subdivided into three areas referred to as A, B, and C (see Fig. 2). One major roadway, New Albany Road, separates Area B from Areas A and C. Area A is the main processing area and contains most of the contamination, including the trench area. Area contains a two story house and a garage, that were us as an office and a quality control lab, respectively. railroad spur that originates in Area A, runs along the north-eastern side of Area B, otherwise the remaining portion of Area B and all of Area C has been left unused from the time that these properties were farmed. The south-eastern portion of Area B, adjacent to the railroad tracks contains wetlands which drain to the west along the tracks into the Pennsauken River. No private wells are found within a quarter mile of the Site, and no public wells are within a mile.

Site History and Enforcement Activities

The Site is an inactive pesticide formulating facility. A summary of Site ownership is presented below.

- 1935 to 1946 - The plant was operated by the International Pulverizing Company;
- 1946 to 1948 - The plant was owned and operated by Micronizer Company, a subsidiary of Freeport Sulfur Company;
- 1948 to 1963 - The plant was owned an operated by PPG Industries, Inc.;
- 1963 to 1979 - The plant was owned and operated by Pulverizing Services, Inc. Operations ceased in 1979; and
- 1979 to Present - The plant has been inactive and unoccupied.

During the operating period of the plant, operations were primarily limited to Area A and involved the grinding, micronizing, and blending of pesticides. According to historical reports, operations were initially limited to formulation of inorganic pesticides such as lead arsenate, calcium arsenate, sulfur, and tetrasodium pyrophosphate. In later years, synthetic organic pesticides such as dichlorodiphenyltrichloroethene (DDT), aldrin, malathion, dieldrin, lindane, rotenone, and n-methyl carbamate (Sevin or Carbaryl) were reportedly formulated. The active pesticide ingredients were not manufactured at the Site, but instead were brought to the Site, ground, blended, and packaged for distribution under various labels.

Site literature (Pulverizing Services, Inc.) indicated tha since 1935, only dry chemical processing was conducted

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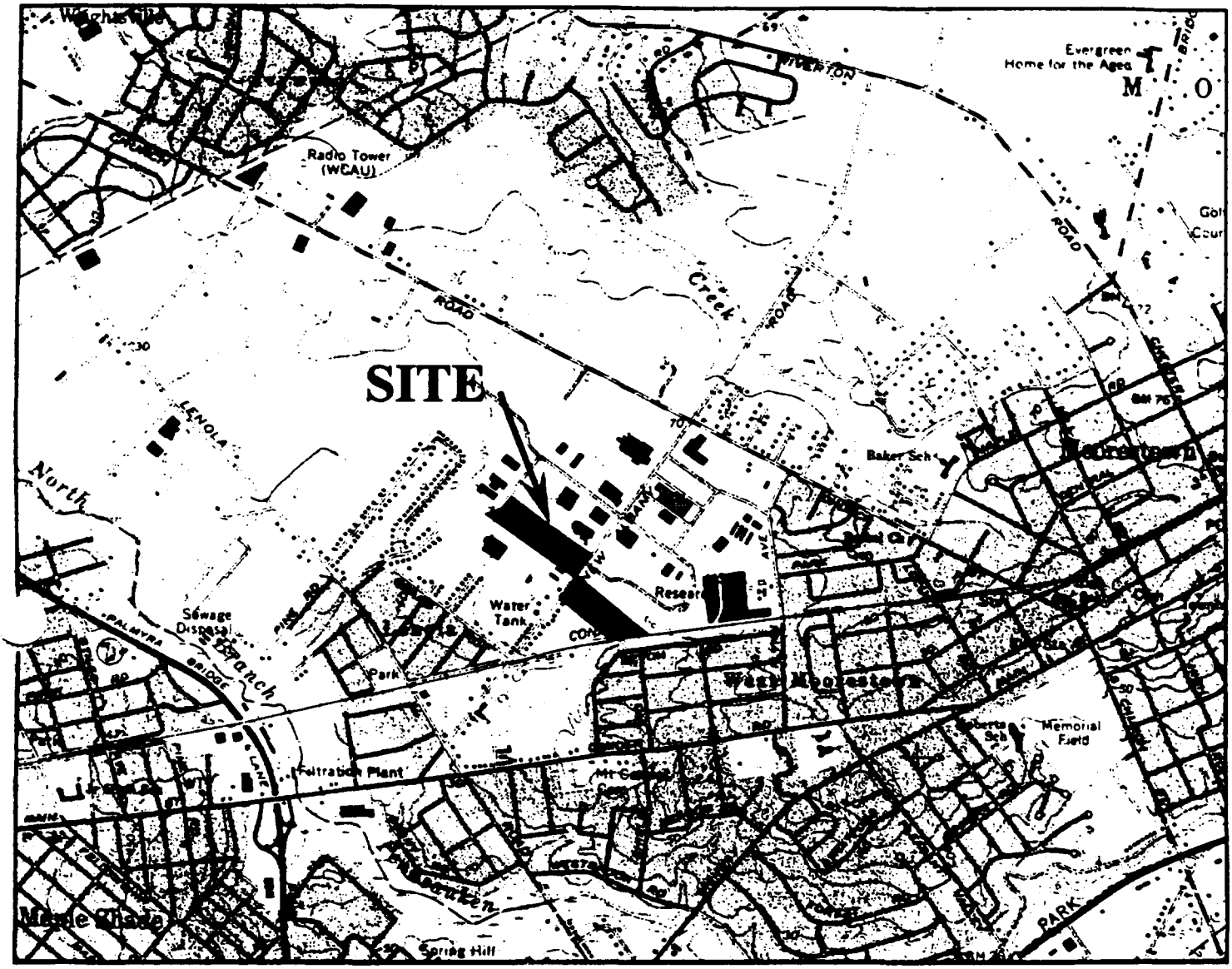
Figure 1 - Site Location Map



SCALE 1:24000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET

Referenced U.S.G.S. Map
Moorestown, NJ
USGS 7.5Min. 1965
Photo Revised 1986

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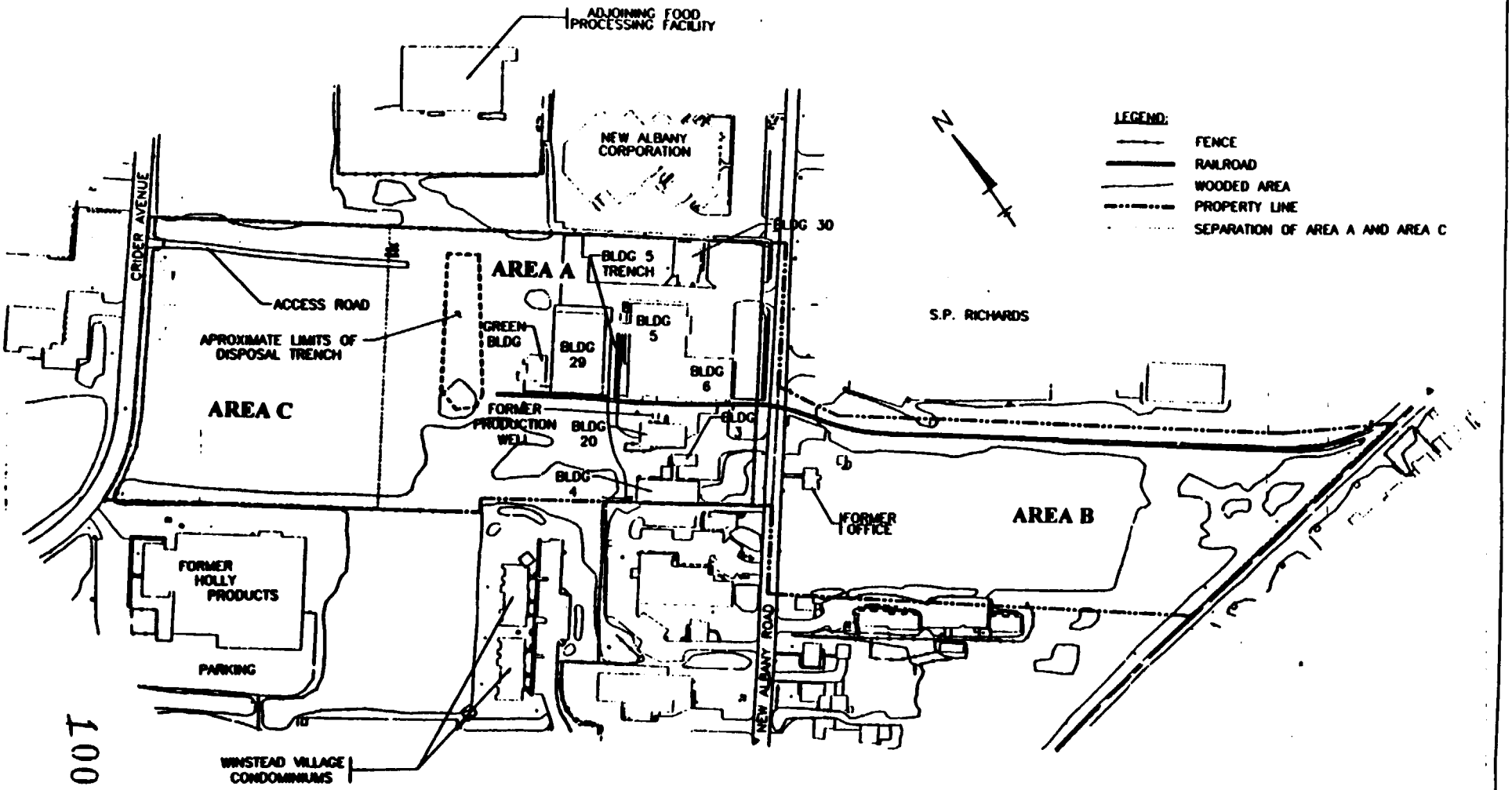
QUADRANGLE LOCATION



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Pulverizing Services Site
Moorestown, New Jersey

Figure 2 Site Layout Map
Figure taken from the Feasibility Study Report

at the Site. The services provided included the grinding (using fluid energy such as compressed air), densifying, packaging, warehousing, and distributing of products to support industries such as plastics, pharmaceuticals, and pesticides.

During the 1950's and early 1960's, waste material was reportedly disposed of to the north of the main production buildings in several trenches. In addition, historical project files indicate that a fire occurred in 1964. The ash and debris from the fire was reportedly placed in a trench north of the main production buildings in Area A. Commercial operations at the plant ceased in 1979. Former plant production facilities within Area A were decommissioned (by removing some interior facilities) and were boarded shut in 1983. The buildings are still present at the Site.

On June 12, 1985, in response to allegations of improper waste disposal, the New Jersey Department of Environmental Protection (NJDEP) performed a site inspection. This inspection revealed that waste material (drummed and loose) remained on-site, in and around the buildings, and also appeared to be buried in the north end of Area A. In April 1986, NJDEP sampled Area A and determined that the trench area was contaminated with pesticides (DDT, DDD and alpha BHC).

In October 1987, after a request by NJDEP to take the lead for the Site, the EPA Technical Assistance Team (TAT) conducted an investigation at the Site. Samples were collected from soil, sediment, surface water, former plant structures, and air. This investigation confirmed the findings of the NJDEP investigation and further determined that the contamination was not limited to the trench areas but could be found in Areas B and C. In December 1987, the EPA Environmental Response Team (ERT) conducted an investigation at the Site. A ground penetrating radar (GPR) survey was used to identify several subsurface anomalies in Area A. Samples were also taken of surface and subsurface soils within Areas A, B, and C. In addition to DDT and its breakdown products, arsenic and sulfur were also detected in on-site soils. In May 1988, PPG Industries (PPG), a former owner /operator of the facility, installed security fencing around Areas A and C, after voluntarily entering into an order with EPA. These areas were chosen to fence, because they contained the main processing area, and an area that could be used as a staging area for future cleanup work.

In 1989, EPA entered into negotiations with the Potentially Responsible Parties (PRP) for the Site. PPG agreed to perform the necessary investigations at the Site. The remaining parties agreed to perform a removal action to clean up the material in and around the buildings.

The Phase I Site Investigation was conducted from December 1989 to January 1990 by Paul C. Rizzo Associates, Inc. (PCR), under contract with PPG. During the investigation, 20 soil borings were completed, and six monitoring wells were installed within Area A. Several soil samples (both surface and subsurface) were collected from each boring. In addition, four surface soil samples were collected from the vicinity of the garage in Area B, and one sediment sample was collected from the drainage ditch northwest of Area A. Samples were analyzed for VOCs, SVOCs, pesticides, and herbicides. A magnetometer and electric conductivity survey were also performed in Area C. A draft report was submitted to EPA on May 25, 1990.

In September 1990, the building cleanup began under the direction of EPA. As part of this cleanup, approximately 600 drums and 580 cubic yards of waste materials were shipped off-site. The interiors of the buildings were then power washed and secured.

The Phase I Site Investigation Report was revised and resubmitted in April 1993. In addition, due to the discovery of contaminated soil in Area B, PPG installed security fencing around that area in the spring of 1993.

A Phase II Site Investigation was performed between October 1994 and May 1995. The goal of the investigation was to further characterize the nature and extent of contamination on and in the immediate vicinity of the Site, in order to support the development of Preliminary Remediation Goals (PRGs) and provide the data necessary to prepare the Response Measures Evaluation Report (RME). Results of the previous EPA and NJDEP sampling events and the Phase I Site Investigation were used to focus the Phase II sampling activities. The Phase II Site Investigation Report was submitted on November 10, 1995.

In the Spring and Fall of 1996, two removal actions were performed to remove contaminated surface soils from two adjacent properties that were identified during the Phase II investigation. Soils removed during these activities were staged on-site in Building 29 for subsequent disposal.

The RME was finalized in December 1997. The purpose of the RME is to identify viable cleanup technologies for the contaminants of concern, and to evaluate the most appropriate cleanup alternative for the Site.

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INVESTIGATION SUMMARY

Phase I Investigation Report Data Summary

The Phase I Site Investigation primarily focused on the collection of samples from soil borings, sediments, and groundwater in Area A. A limited investigation was performed in Area B, which included the installation of one boring and the collection of four surface soil samples. Since this Proposed Plan focuses on Site soils, the following summary will only provide the findings of the surface and subsurface soil portions of Phase I Site Investigation.

Area A Soils

Soil samples were collected from 19 borings in Area A. Surface soil samples were obtained from the 0-2 foot interval; subsurface soils were obtained from the 5 to 7 foot interval, and the 10 to 12 foot interval. The samples were analyzed for inorganics, volatile organic compounds, semivolatile organic compounds, and pesticides.

Analysis of the soil boring samples revealed that inorganics were detected at concentrations within expected background ranges. The concentrations of lead and arsenic varied between 2.4 and 22.9 parts per million (ppm) and <1.0 and 17 ppm, respectively. Volatile and semi-volatile organic compounds were detected in low concentrations at intermittent locations in the surface and subsurface. The pesticide results from the soil boring samples are summarized below:

Surface Soil Pesticide Results: Six shallow soil boring samples were submitted for laboratory analysis. Detected dieldrin and combined DDD, DDE, and DDT concentrations within those samples ranged from 0.25 to 270 ppm and 0.04 to 4.1 ppm, respectively. Aldrin was not detected in any of the shallow boring samples. Borings located near the northeastern perimeter fence and Building 29 contained the greatest concentrations of pesticides.

Subsurface Soil Pesticide Results: Thirty-eight subsurface samples were submitted for laboratory analysis. Dieldrin and combined DDD, DDE, and DDT concentrations within those samples ranged from 0.019 to 63.9 ppm and 0.030 to 470 ppm, respectively. Aldrin was detected at concentrations ranging from 0.022 to 6.9 ppm in the 5 -7 foot interval only. Constituents detected in the subsurface soil boring samples were primarily located within the area of the former disposal trench.

AREA B Soils

Surface Soil Results: Four surface soil samples were collected from Area B in the vicinity of the garage. Results of the surface soil sampling event indicated that DDT was detected at levels ranging from 2.71 ppm to 27,200 ppm.

Subsurface Soil Results: Subsurface soil samples were collected from one soil boring in Area B. Dieldrin and combined DDD, DDE, and DDT concentrations within the two samples were non-detect (ND) and 0.227 to 2.92 ppm, respectively. Aldrin was not detected in the samples.

Phase II Site Investigation Report Data Summary

The Phase II Site Investigation revealed that pesticides, mostly DDT, DDT breakdown products and some dieldrin, were found throughout the Site. The highest concentrations of pesticides were in Area A, within the vicinity of the former disposal trench, and along the northeast perimeter fence. The report also indicated that inorganics were present in soils within Area A, but only in some of the areas where elevated levels of pesticide contaminants were detected. Detectable concentrations of semivolatile organic compounds were primarily restricted to three boring locations in Area A. Volatile organic compounds were only detected at low concentrations. The following sections provide, in further detail, a summary of the constituents detected in Areas A, B, and C at the Site.

Area A

Surface Soil Results: Areas of surface soil contamination in Area A are located within the former disposal trench and along the northeastern perimeter fence. Dieldrin and 4,4-DDT were present at these locations in concentrations ranging from 0.750 to 2,200 ppm and 2.5 to 6,800 ppm, respectively. Sampling locations within/near the former disposal trench contained the greatest contaminant concentrations.

Arsenic, lead, and chromium concentrations ranged from 2.2 to 132.0 ppm, 17.6 to 480.5 ppm, and 5.3 to 96.5

ppm, respectively. These metals were primarily found within isolated surface soil sampling locations near/within the former disposal trench, and near the southwestern perimeter fence.

Subsurface Soil Results: Pesticide-containing subsurface soils in Area A are primarily located within the former disposal trench, in areas immediately east of the disposal trench near Building 29, and near the drainage ditch outfall pipe. Concentrations of Dieldrin and DDT range from 0.022 to 63.9 and 0.030 to 442.0 ppm, respectively. Arsenic, lead, and chromium concentrations ranged from 3.1 to 24.8 ppm, 2.4 to 124 ppm, and 4.0 to 47.0 ppm, respectively.

Area B

Surface Soil Results: DDT was detected in Area B surface soils at concentrations ranging from 0.190 to 280 ppm. Contamination primarily appears to be limited to areas immediately surrounding soil borings SB-54 and SB-19, located approximately 250 feet southeast of New Albany Road, and within the debris area near the eastern corner of the region. The debris area was identified based on the total chlorinated screening results. The CLP DDT data from the debris area indicated lower concentrations than those detected during the screening analyses. Inorganics were detected within background ranges within Area B surface soils.

Elevated levels of semivolatiles in Area B surface soils were detected in one boring installed adjacent to the railroad tracks.

Subsurface Soil Results: Only low concentrations of pesticides were detected in the subsurface soils within Area B. Combined DDD, DDE, and DDT concentrations in samples below the surface soil "hot spots" located southeast of New Albany Road were less than 2 ppm. Combined DDD, DDE, and DDT concentrations to 65 ppm were detected in the subsurface soils of the debris area located in the eastern corner of the region.

Area C

Surface Soil Results: CLP data and field screening data from surface samples collected within Area C do not indicate the presence of pesticides at elevated concentrations. DDT was detected at concentrations ranging from 0.022 to 3.8 ppm.

Field screening and CLP data indicate the presence of arsenic at levels ranging from non-detect (ND) to 88 ppm.

Subsurface Soil Results: The CLP data presented in the Phase II Report indicates that no pesticides, inorganics, volatile or semivolatile compounds are present in subsurface soils of Area C at elevated concentrations.

SUMMARY OF SITE RISK

Based upon the results of the RI, a baseline risk assessment was conducted to estimate the risks associated with current and future Site conditions. The baseline risk assessment estimates the human health and ecological risk which could result from the contamination at the Site if no remedial action were taken.

Human Health Risk Assessment

The following four-step process was used to conduct the Risk Assessment:

1. ***Hazard Identification***– identifies the contaminants of concern at the Site based on several factors such as toxicity, frequency of occurrence, and concentration.
2. ***Exposure Assessment***– estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated groundwater) by which humans are potentially exposed.
3. ***Toxicity Assessment***– determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response).
4. ***Risk Characterization***– summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative (e.g., one-in-a-million excess cancer risk) assessment of site-related risks.

The baseline risk assessment began with selecting contaminants of concern which would be representative of the contamination found in various media (surface soil, subsurface soil, surface water, sediment, and groundwater) at the Site. Since this Operable Unit will only deal with surface and subsurface soil, this document will focus on those media. Due to the large number of chemicals detected at the Site, only those chemicals which were thought to pose the highest risk (based on factors such as frequency of detection and concentration detected)were retained as contaminants of concern. The

contaminants of concern in surface soil include: aldrin, dieldrin, 4,4' DDT, 4,4' DDE, 4,4' DDD, benzo(a)pyrene, benzo(b)pyrene, fluoranthene , OCDD, arsenic, manganese, beryllium, and vanadium.
The contaminants of concern in subsurface soils include aldrin, dieldrin, 4,4' DDT, 4,4' DDE, alpha-BHC, arsenic, and manganese. Several of the contaminants of concern listed above are known or suspected of causing cancer in animals and/or humans or of causing non-cancer health effects in the liver, kidney, respiratory tract, and the central nervous system.

An important factor which drives the risk assessment is the assumed future use of the Site. Based on discussions with the town and the fact that the Site is currently zoned for commercial and light industrial use, EPA assumed that the most probable future use of the Site would be for continued commercial and industrial development. Under the current land use of the property, the Site contaminants have the potential to impact trespassers. In the future, it is possible that potential human receptors would include trespassers, Site workers (employees), and construction workers.

Pathways of exposure evaluated for the Site include:

1) sediment and soil ingestion; 2) dermal contact with soil and sediment; 3) ingestion of contaminated groundwater and surface water; 4) dermal contact with surface water; and, 5) inhalation of VOCs and particulates. Because EPA assumed a future commercial and industrial land use of the Site, the list of possible human receptors identified in the exposure assessment included trespassers, Site workers (employees of a company located on-site, that would have limited exposure to surface soils over long periods of time), and construction workers (a person such as a utility worker that may have a short duration exposure to larger amounts of surface soil as well as subsurface soils). Exposure intakes (doses) were calculated for each receptor for all pathways considered. This operable unit focuses on surface and subsurface soil pathways.

EPA's acceptable cancer risk range is 10^{-4} to 10^{-6} which can be interpreted to mean that an individual may have a 1 in 10,000 to 1 in 1,000,000 increased chance of developing cancer as a result of Site-related exposure to a carcinogen over a 70-year lifetime under the specific exposure conditions at the Site. The State of New Jersey's acceptable risk standard is one in one million (1×10^{-6}).

EPA found that contaminants in the surface soil in Area A at the Site posed an unacceptable total cancer risk (1.3×10^{-3}) to area trespassers through ingestion and inhalation. Dieldrin, DDT and aldrin are the predominant contributors to the estimated cancer risk. The other receptors/exposure routes have estimated cancer risks within or below EPA's acceptable risk range.

To assess the overall potential for non-carcinogenic effects posed by more than one contaminant, EPA has developed a hazard index (HI). This index measures the assumed exposures to several chemicals at low concentrations, simultaneously, which could result in adverse health effects. In accordance with this approach, a hazard quotient (i.e., the ratio of the level of exposure to an acceptable level) greater than 1.0 indicates a potential of noncarcinogenic health effects. The HI is summed for all media common to a particular receptor.

With regard to non-cancer effects, based on the calculated HIs, EPA found that several potential exposure pathways could have unacceptable health effects including: ingestion of Area A surface soil by area resident trespassers (HI=23); ingestion of Area A surface soil by Site workers (HI=29); and, ingestion of subsurface soils by construction workers in Area A and B (HI = 1.3 and 3.0, respectively).

In summary, the Human Health Risk Assessment concluded that exposure to surface soil and subsurface soils, if not addressed by the preferred response measure or one of the other active measures considered, may present a current or potential threat to public health or welfare. The assessment determined the Preliminary Remediation Goals (PRGs) based on the 10^{-6} site worker exposure, and the 10^{-4} construction worker exposure, should be the following;

Preliminary Remediation Goals

	Site Worker	Construction Worker
Aldrin	0.34 ppm	3.3 ppm
Dieldrin	0.36 ppm	3.5 ppm
4,4'-DDT	17.0 ppm	165.0 ppm

Although the site trespasser scenario did pose a risk, a PRG based on the 10^{-6} site trespasser exposure scenario would be higher than the site worker PRG, and therefore the Site worker PRG was used. EPA estimates that approximately 8,800 tons of contaminated soil exceeds the site worker PRG, but are less than the construction worker PRG, and 4,300 tons of soil exceed the construction worker PRG.

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Ecological Risk Assessment

The Ecological Risk Assessment involves a qualitative and/or semi-quantitative appraisal of the actual or potential effects of a hazardous waste site on plants and animals. A four-step process is utilized for assessing site-related ecological risks:

1. ***Problem Formulation*** - a qualitative evaluation of contaminant release, migration, and fate; identification of contaminants of concern, receptors, exposure pathways, and known ecological effects of the contaminants; and selection of endpoints for further study.
2. ***Exposure Assessment*** - a quantitative evaluation of contaminant release, migration, and fate; characterization of exposure pathways and receptors; and measurement or estimation of exposure point concentrations.
3. ***Ecological Effects Assessment*** - literature reviews, field studies, and toxicity tests, linking contaminant concentrations to effects on ecological receptors.
4. ***Risk Characterization*** - measurement or estimation of both current and future adverse effects.

The Remedial Investigation Report identified several pesticides and metals in surface soils at the Site. The qualitative ecological risk assessment began with the identification of flora and fauna that could potentially come into contact with the contaminants in the soil. Terrestrial receptors such as rabbits and birds were observed. Evidence of small mammals was also observed. Potential exposure pathways that exist for these terrestrial receptors are ingestion, inhalation, and dermal contact with the contaminants.

A conservative food chain exposure model was conducted to determine if the Preliminary Remediation Goal for 4-4'-DDT would be protective of the ecological receptors. The results of this model indicated that there may be potential risks to ecological receptors associated with exposure to this pesticide. However, based on the site-specific characteristics such as the small size of the Site, the fact that the property is expected to remain zoned as commercial, the lack of sensitive populations and the potential for further development and increased human activity which may further reduce the amount of habitat on the Site, the potential risks would be minimal. Furthermore, the proposed remediation of soils to human health-based PRGs would decrease the amount of soil containing contaminant concentrations that would pose a risk to ecological receptors, thereby reducing ecological risk to an acceptable level.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives are specific goals to protect human health and the environment. These objectives are based on available information and standards such as applicable or relevant and appropriate requirements (ARARs) and risk based-based levels established in the risk assessment.

The following objectives were established for the Pulverizing Services Site.

Remedial actions shall:

1. Mitigate potential routes of human health and environmental exposure to contaminated soils.
2. Restore the soil at the Site to levels which would allow for commercial reuse of the property.
3. Treat and/or dispose of soils stockpiled in Building 29.
4. Remediate all on-site soils above the site worker PRGs provided by the Risk Assessment.
5. Treat all Hot Spot soils. Hot Spots for this site were determined to be all Soils above 1000 ppm total chlorinated pesticides (treatment level). The estimated volume of affected soil above 1000 ppm is between 1,300 and 4,000 tons.
6. Comply with ARARs, or provide grounds for invoking a waiver.

SCOPE AND ROLE OF ACTION

This action would address contaminated soil. Previous removal actions included fencing in the Site, removal of contaminated soils from two neighboring properties, removal of chemicals found in and around the buildings, and power-washing the buildings. A future action or "operable unit" is necessary to investigate the extent of groundwater and surface water contamination. The groundwater directly beneath the Site is not used as a drinking water source. The deeper aquifer, which is used as a source of drinking water, is separated from the Site contaminants by approximately 200 feet of clay. Therefore, no impacts to drinking water are anticipated.

SUMMARY OF REMEDIAL RESPONSE MEASURES

CERCLA requires that each remedy be protective of human health and the environment, be cost effective, comply with other statutory laws, and utilize permanent solutions and alternative treatment technologies and

resource recovery technologies to the maximum extent practicable. In addition, the statute includes a preference for the use of treatment as a principal element for the reduction of toxicity, mobility, or volume of hazardous substances.

The implementation period for response measures listed below does not include the time for design which can range from 2 to 8 months. Because each response measure is based on a future industrial/commercial land use of the Site, each would require institutional controls (i.e. deed restrictions or zoning restrictions) to restrict non commercial uses of the site in the future, and in some cases to protect waste caps from being breached. In addition, All response measures will require five year reviews. The response measures are as follows :

Response Measure 1: No Further Action

Estimated Capital Costs: $ 0
Estimated O&M Costs (30 years): $ 0
Estimated Total Present Worth Value: $ 0
Estimated Implementation Period: No implementation necessary

The "No-Action" response measure is used as a baseline for comparison of other soil response measures. Under this response measure, EPA would take no action at the Site.

Response Measure 2: Selective Excavation, Consolidation, and Capping

Estimated Capital Costs: $ 1,339,000
Estimated O&M Costs (30 years): $ 184,000
Estimated Total Present Worth Value: $ 1,523,000
Estimated Implementation Period: 8 months

This Response Measure would involve: the excavation of all soils from Areas B and C, as well as outlying portions of Area A, containing contaminant concentrations in excess of the Site Worker PRGs. Excavated soil that is in excess of the Construction Worker PRGs would be consolidated within part of the trench area along with any materials determined to be a hazardous waste. These materials would be covered with a Resource Conservation and Recovery Act (RCRA) quality cap. The remaining soils containing concentrations in excess of the Site Worker PRGs, but less than the Construction Worker PRGs, would also be consolidated within the trench area. This portion of the trench would then be covered using a soil cover with an impermeable geomembrane, or an asphalt cap, to be determined during design. A cap would reduce the potential for direct contact with contaminated media and minimize infiltration of storm water into the underlying soils. Excavated areas would then be backfilled with clean fill. Operation and maintenance would include bi-monthly inspections, mowing and watering, regrading and revegetation.

Response Measure 3A: Excavation; On-Site, Ex-situ Anaerobic Biotreatment; Off-Site Landfilling/Incineration

Estimated Capital Costs: $ 3,024,000 to $ 5,113,000 ①
Estimated O&M Costs (30 years): $ 22,000
Estimated Total Present Worth Value: $ 3,046,000 to $ 5,135,000 ①
Estimated Implementation Period: 34 months

① *A range is given since the actual cost is dependent on the relative amount of high and low concentration wastes.*

Under this alternative, Site soils and trench materials that contain concentrations of the chemicals of concern in excess of the Site Worker PRGs would be excavated. Excavated soils that are determined to be less than the Treatment Level of 1000 ppm total chlorinated pesticides (TL), and not RCRA hazardous would be sent to an off-site landfill. The remaining soil would be tested to determine which soils are treatable with bioremediation. Treatable soils would be treated on-site, and the remaining soils would be treated at a permitted off-site incinerator. Soils treated on-site would be backfilled into the previously excavated areas. A bench-scale treatability study and a pilot-scale field test would be required to determine whether biotreatment will reduce the level of contaminants in Site soils to below the Sit worker PRGs. The off-site incinerator would also provid a contingency measure in the event that the biotreatment process proves ineffective. Excavated areas would then be backfilled with clean fill.

Response Measure 3B: Excavation; On-Site, Ex-situ Anaerobic Biotreatment; Off-Site Landfilling/Incineration and Capping

Estimated Capital Costs: $ 2,414,000 to $ 4,177,000 ①
Estimated O&M Costs (30 years): $ 236,000*
Estimated Total Present Worth Value: $ 2,650,000 to $ 4,414,000 ①
Estimated Implementation Period: 36 months

* *This estimate is for the soil / membrane cap, add $250,000 for the asphalt cap*

① *A range is given since the actual cost is dependent on the relative amount of high and low concentration wastes.*

Under this alternative, all soils containing contaminants greater than the Site Worker PRGs would be excavated. Excavated soil which is determined to be non-RCRA hazardous, and contains contaminants at levels less than the Construction Worker PRGs, would be consolidated within the excavated former disposal trench area and covered with either a soil and impermeable membrane cap or asphalt cap, to be determined during design. Excavated soils and trench materials that are determined to be treatable with biotreatment and contain concentrations of the chemicals of concern in excess of the Construction Worker PRGs or are determined not to

be RCRA hazardous would be treated by on-site anaerobic bioremediation. The remainder of these higher level wastes which cannot be bioremediated would be sent to a permitted off-site incinerator. Soils and media treated via bioremediation would be backfilled into the previously excavated areas. A bench-scale treatability study and a pilot-scale field test would be required to determine whether biotreatment will reduce the level of contaminants in Site soils to below the Site worker PRGs. The off-site incinerator would also provide a contingency measure in the event that the treatment process proves ineffective. Since the Construction Worker PRGs are lower than the New Jersey Impact to Groundwater Site Cleanup Criteria, backfilling and capping of soils that exhibit contaminant concentrations less than the Construction Worker PRGs would help to ensure groundwater is protected in the event of a breach in the cap. The unfilled portions of the excavated areas would then be backfilled with clean fill. Operation and maintenance would include bi-monthly inspections, mowing and watering, regrading and revegetation.

Response Measure 4A: Excavation; Off-Site Low Temperature Thermal Desorption; Off-Site Landfilling/Incineration

Estimated Capital Costs: $ 2,621,000 to 4,679,000 ①
Estimated O&M Costs (30 years): $ 22,000
Estimated Total Present Worth Value: $ 2,643,000 to 4,701,000 ①
Estimated Implementation Period: 8 months

①A range is given since the actual cost is dependent on the relative amount of high and low concentration wastes.

Under this alternative, Site soils and former disposal trench materials that contain concentrations of the chemicals of concern in excess of the Site Worker PRGs would be excavated. Excavated soils that are determined to be less contaminated than the 1000 ppm TL and not RCRA hazardous would be sent to an off-site landfill. Excavated soils that are determined to be non-RCRA hazardous, and more contaminated than the 1000 ppm TL, but less contaminated than treatment ceilings of the low temperature thermal desorption (LTTD) facilities, would be sent off-site for LTTD treatment. The remaining soils (those containing levels of contaminants above the 1000 ppm TL and the LTTD ceiling and/or that are RCRA hazardous wastes) would be sent to a RCRA permitted off-site incinerator. Following treatment at the LTTD facility, soils may be transported back to the Site for use as backfill providing the contaminant levels in the treated soils are less than the Site Worker PRGs and there are no aesthetic problems (i.e odor, unwanted debris etc.). This alternative would require pilot-scale treatability studies at selected off-site low temperature thermal desorption (LTTD) facilities to determine if LTTD will reduce the level of contaminants in Site soils to below the Site worker PRGs. The off-site incinerator would also provide a contingency measure should the LTTD technology prove to be limited in effectiveness. Excavated areas would then be backfilled with clean fill.

Response Measure 4B: Excavation; Off-Site Low Temperature Thermal Desorption; Off-Site Landfilling and Incineration of Soils In Excess of the Construction Worker PRGs; Consolidation and Capping of Remaining On-Site Soils Greater Than The Site Worker PRGs

Estimated Capital Costs: $ 2,148,000 to $ 3,830,000 ①
Estimated O&M Costs (30 years): $ 236,000*
Estimated Total Present Worth Value: $ 2,384,000 to $ 4,066,000 ①
Estimated Implementation Period: 10 months

**This estimate is for the soil / membrane cap, add $250,000 for the asphalt cap*

①A range is given since the actual cost is dependent on the relative amount of high and low concentration wastes.

Under this alternative, Site soils and former disposal trench materials that contain concentrations of the chemicals of concern in excess of the Site Worker PRGs would be excavated. Excavated soils that are determined to be non-RCRA hazardous and less contaminated than the Construction Worker PRGs would be consolidated within the former trench area and covered with either an asphalt cap or a soil and impermeable membrane cap. Excavated soils that are determined to be non-RCRA hazardous and more contaminated than the Construction Worker PRGs, but less contaminated than the 1000 ppm TL, would be sent to an off-site landfill. Excavated soils that are determined to be non-RCRA hazardous, and more contaminated than the 1000 ppm TL, but less contaminated than the treatment ceiling of the LTTD facility, would be sent off-site for LTTD treatment. The remaining soils (those containing levels of contaminants above the 1000 ppm TL and the LTTD ceiling and/or that are RCRA hazardous wastes) would be sent to a RCRA permitted off-site incinerator. Following treatment at the LTTD facility, soils may be transported back to the Site for use as backfill providing the contaminant levels in the treated soils are less than the Site Worker PRGs and there are no aesthetic problems (i.e odor, unwanted debris etc.). This alternative would require pilot-scale treatability studies at selected off-site LTTD facilities to determine if LTTD will reduce the level of contaminants in Site soils to below the Site worker PRGs. The off-site incinerator would also provide a contingency measure should the LTTD technology prove to be limited in effectiveness. Since the Construction Worker PRGs are lower than the New Jersey Impact to Groundwater Site Cleanup Criteria, backfilling and capping of only soils that exhibit contaminant concentrations less than the Construction Worker PRGs would help to ensure

groundwater is protected in the event of a breach in the cap. The remaining unfilled portions of the excavated areas would then be backfilled with clean fill. Operation and maintenance would include bi-monthly inspections, mowing and watering, regrading and revegetation.

Response Measure 5A: Excavation; Off-Site Incineration; Off-Site Landfilling

Estimated Capital Costs: $2,811,000 to $ 5,251,000 ①
Estimated O&M Costs (30 years): $ 22,000
Estimated Total Present Worth Value: $2,833,000 to $ 5,273,000 ①
Estimated Implementation Period: 6 months

①A range is given since the actual cost is dependent on the relative amount of high and low concentration wastes.

This response measure would involve excavation of the Site soils and trench materials that contain concentrations of the chemicals of concern in excess of the Site Worker PRGs. Non-hazardous soils containing chemicals of concern in concentrations less than the 1000 ppm TL would be sent for disposal at a permitted off-site landfill. The remaining soils (above the 1000 ppm TL) and RCRA- wastes (if encountered) would be incinerated at a permitted off-site facility. Excavated areas would then be backfilled with clean fill.

Response Measure 5B: Excavation; Off-Site Incineration and Landfilling of Soils In Excess of the Construction Worker PRGs; and Consolidation and Covering of Remaining On-Site Soils Greater Than the Site Worker PRGs

Estimated Capital Costs: $ 2,536,000 to $ 4,175,000 ①
Estimated O&M Costs (30 years): $ 244,000*
Estimated Total Present Worth Value: $ 2,780,000 to$ 4,419,000 ①
Estimated Implementation Period: 8 months

**This estimate is for the soil / membrane cap, add $250,000 for the asphalt cap*

①A range is given since the actual cost is dependent on the relative amount of high and low concentration wastes.

This response measure would involve of excavation of Site soils and former disposal trench materials that contain concentrations of the chemicals of concern in excess of the Site Worker PRGs. Non-RCRA hazardous wastes that are below the Construction Worker PRGs would be consolidated within the former trench area and covered with either an asphalt cap or a soil and impermeable membrane cap. Non-RCRA hazardous wastes containing more than the Construction Worker PRGs, but less than the 1000 ppm TL would be sent to a permitted off-site landfill. The remaining soils (those containing levels of contaminants above the 1000 ppm TL and/ or RCRA hazardous wastes) would be sent to a RCRA-permitted off-site incinerator. Since the Construction Worker PRGs are lower than the New Jersey Impact to Groundwater Site Cleanup Criteria, backfilling and capping of only soils that exhibit contaminant concentrations less than the Constructi Worker PRGs would help to ensure groundwater is protected in the event of a breach in the cap. Excavated areas would then be backfilled with clean fill. Operation and maintenance would include bi-monthly inspections, mowing and watering, regrading and revegetation.

EVALUATION OF RESPONSE MEASURES

Each of the above response measures was evaluated against specific criteria on the basis of the statutory requirements of CERCLA Section 121. A total of nine criteria are used in evaluating the response measures. The first two criteria are threshold criteria which must be met by each response measure. The next five criteria are the primary balancing criteria upon which the analysis is based. The final two criteria are referred to as modifying criteria and are applied, following the public comment period, to evaluate state and community acceptance. The Glossary of Evaluation Criteria describes the nine criteria used in evaluating remedial response measures.

A comparative analysis of these response measures based upon these evaluation criteria is presented belov

Overall Protection of Human Health and the Environment

With respect to the protection of the environment, the preliminary remedial goals (PRGs) developed for this site may not be considered protective of ecological receptors on all sites. However, due to site specific characteristics such as limited habitat, human activity, size of the site, and the minimum amount of soil that will contain contaminant concentrations at the PRGs after remediation, the ecological risk will be acceptable if the site is remediated to the PRGs.

Response Measure 1: No Action would not be protective of human health and the environment because the Site would remain in its current condition. The soils would continue to pose a threat to trespassers and future Site workers. Therefore, Response Measure 1 has been eliminated from consideration and will not be discussed further.

Response Measure 2: Selective Excavation, Consolidation, and Capping relies completely on containment and institutional controls to provide protection over time. Deed restrictions would have to be enforced to ensure that the cap is not breached in the future in order for this response measure to be protective.

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GLOSSARY OF EVALUATION CRITERIA

Threshold Criteria

Overall Protection of Human Health and the Environment: This criterion addresses whether or not a remedy provides adequate protection and describes how risks are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

Compliance with ARARs: This criterion addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements of other environmental statutes and requirements or provide grounds for a waiver.

Primary Balancing Criteria

Long-term Effectiveness: This criterion refers to the ability of a remedy to maintain protection of human health and the environment, once cleanup goals have been met.

Reduction of Toxicity, Mobility or Volume through Treatment: This criterion refers to the anticipated performance of the treatment technologies a remedy may employ.

Short-term Effectiveness: This criterion considers the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.

Implementability: This criterion examines the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

Cost: This criterion includes capital and operation and maintenance costs.

Modifying Criteria

State Acceptance: This criterion indicates whether, based on its review of the Investigation Report and Proposed Plan, the state concurs, opposes, or has no comment on the preferred response measure.

Community Acceptance: This criterion will be addressed in the Record of Decision following a review of the public comments received on the Proposed Plan.

Response Measure 3A: Excavation; On-Site, Ex-situ Anaerobic Biotreatment; Off-Site Landfilling /Incineration would eliminate all significant risk to human health and the environment from Site contaminants through off-site removal or treatment of contaminated soils that are found to be above the 10^{-6} site worker criterion.

Response Measure 3B: Excavation; On-Site, Ex-situ Anaerobic Biotreatment; Off-Site Landfilling/Incineration and Capping relies partially on containment and institutional controls to provide protection over time. Deed restrictions would have to be enforced to ensure that the cap is not breached in the future in order for this response measure to be protective. The most contaminated soils would be removed or treated, leaving only lower level soils to be capped.

Response Measure 4A: Excavation; Off-Site Low Temperature Thermal Desorption; Off-Site Landfilling/Incineration would eliminate all significant risk to human health and the environment from Site contaminants through off-site removal or treatment of contaminated soils that are found to be above the 10^{-6} site worker criterion.

Response Measure 4B: Excavation; Off-Site Low Temperature Thermal Desorption; Off-Site Landfilling and Incineration; Consolidation and Capping relies partially on containment and institutional controls to provide protection over time. Deed restrictions would have to be enforced to ensure that the cap is not breached in the future in order for this response measure to be protective. The most contaminated soils would be removed or treated, leaving only lower level soils to be capped

Response Measure 5A: Excavation; Off-Site Incineration; Off-Site Landfilling would eliminate all significant risk to human health and the environment from Site contaminants through off-site removal of contaminated soils that are found to be above the 10^{-6} site worker criterion.

Response Measure 5B: Excavation; Off-Site Incineration and Landfilling; and Consolidation and Capping relies partially on containment and institutional controls to provide protection over time. Deed restrictions would have to be enforced to ensure that the cap is not breached in the future in order for this response measure to be protective. The most contaminated soils would be removed or treated, leaving only lower level soils to be capped.

Compliance with ARARs

Actions taken at any Superfund site must meet all applicable or relevant and appropriate requirements of federal and state law or provide grounds for invoking a waiver of these requirements. There are several types of ARARs: chemical-specific, location-specific, and action- specific. Chemical-specific ARARs are usually numerical values which establish the amount or concentrations of a chemical that may be found in, or discharged to, the ambient environment. Location-specific requirements are restrictions placed on the concentrations of hazardous substances or the conduct of activities solely because they occur in a special location. Action-specific ARARs are technology or activity-specific requirements or limitations related to various activities. Below is a discussion of some of the major ARARs for the Pulverizing Services Site; a full list can be found in the RME.

Chemical- Specific ARARs

There are no federal or State promulgated soil cleanup standards. None of the response measures evaluated meet the State soil cleanup criteria for unrestricted use which, while not legally applicable, were considered by EPA. If the State soil criteria are not met, institutional controls could be required by the State. Certain of the wastes on-site may be determined to be hazardous waste, as defined in the Resource Conservation and Recovery Act (RCRA). Therefore, the regulations regarding identification and listing of hazardous waste at 40 CFR Part 261 may also apply if RCRA wastes are found in the trenches during excavation.

Each response measure that includes on-site treatment may result in air emissions. If so, these treatment processes would be subject to Federal Clean Air Act requirements which would regulate emissions from the treatment system.

Location-Specific ARARs

Because a portion of the Site is classified as wetlands, all response measures would need to comply with Section 404 of the Clean Water Act and federal Executive Order 11990(wetlands protection) which requires federal agencies to take actions to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Any actions which disturb or impact wetlands would additionally require development of a wetlands mitigation plan. The Site is not located in a flood plain and no endangered species have been observed at the Site. A cultural resource survey was completed in February 1998. This study determined that there are no historically significant resources at the Site.

Action-Specific ARARs

The major action-specific requirements for the various response measures include RCRA requirements which control the transportation and disposal of hazardous waste (if hazardous waste is determined to be on-site) and National Ambient Air Quality Standards. For example, Alternative 2 includes excavation and capping of contaminated soil. This response measure would trigger RCRA containment requirements in 40 CFR Part 264. Response Measures 3A, 3B, 4A, and 4B include on and off-site treatment. Therefore, these response measures would trigger RCRA treatment requirements in 40 CFR Part 264 and RCRA transporter requirements in 40 CFR Part 263. Any response measure that may result in air emissions would be subject to federal Clean Air Act requirements which would regulate emissions from the treatment system.

During excavation of waste from the trenches on-site, EPA would determine whether any RCRA hazardous wastes are found on-site. The hazardous waste listings are found in 40 CFR Part 261. Any waste which is determined to be a RCRA listed hazardous waste would, in addition to the other requirements mentioned above, be subject to the RCRA land disposal restrictions in 40 CFR Part 268. These restrictions prohibit land disposal of certain listed wastes without prior treatment.

Long-Term Effectiveness and Permanence

Response Measure 2: Selective Excavation, Consolidation, and Capping; would provide the least amount of long-term effectiveness and permanence. Under this alternative contaminated soils would remain on-site. In addition, institutional controls would need to be employed and enforced in order to ensure that the cap was not breached and rendered ineffective.

Response Measure 3A: Excavation; On-Site, Ex-situ Anaerobic Biotreatment; Off-Site Landfilling /Incineration; provides a high degree of long-term effectiveness by destroying and/or removing waste from the Site, but only provides a moderate degree of permanence since some waste may not be destroyed but only contained off-site.

Response Measure 3B: Excavation; On-Site, Ex-situ Anaerobic Biotreatment; Off-Site Landfilling/Incineration and Capping; provides a moderate degree of long-term effectiveness by destroying and/or removing the most contaminated waste from the Site, but only provides a moderate to low degree of permanence since some waste (possibly some highly contaminated waste)would not be destroyed but only contained both on and off-site. Wastes contained on-site would require institutional controls to be employed and enforced in order to ensure the that the cap was not breached and therefore rendered ineffective.

Response Measure 4A: Excavation; Off-Site Low Temperature Thermal Desorption; Off-Site Landfilling/Incineration; provides a high degree of long-term effectiveness by removing and/or destroying the most contaminated waste from the Site, but only provides a moderate to high degree of permanence since some lesser contaminated waste would not be destroyed but only contained off-site.

Response Measure 4B: Excavation; Off-Site Low Temperature Thermal Desorption; Off-Site Landfilling and Incineration; Consolidation and Capping; provides a moderate degree of long-term effectiveness by destroying and/or removing the most contaminated waste from the Site, but only provides a moderate degree of permanence since some of the low level waste would not be destroyed but only contained on-site. Wastes contained on-site would require institutional controls to be employed and enforced in order to ensure the that the cap was not breached and therefore rendered ineffective.

Response Measure 5A: Excavation; Off-Site Incineration; Off-Site Landfilling; provides a high degree of long-term effectiveness by removing all contaminated waste from the Site, but only provides a moderate to high degree of permanence since some lesser contaminated waste would not be destroyed but only contained off-site.

Response Measure 5B: Excavation; Off-Site Incineration and Landfilling; and Consolidation and Capping; provides a moderate degree of long-term effectiveness by removing the most contaminated waste from the Site, and only provides a moderate to degree of permanence since some lesser contaminated waste would contained on-site.

Short-Term Effectiveness

Response Measure 2: Selective Excavation, Consolidation, and Capping; can be implemented in approximately 8 months which would reduce the short-term risks. Excavation and construction of the cap would require handling of contaminated soils and dust generation, but these can be controlled through the use of protective equipment, good construction practice and dust suppression. No off-site truck traffic would be required.

Response Measure 3A: Excavation; On-Site, Ex-situ Anaerobic Biotreatment; Off-Site Landfilling /Incineration; can be implemented in approximately 34 months and would require extensive material handling and a long on-site construction phase. Although the contaminant exposures can be reduced through the use of protective equipment, good construction practice and dust suppression, there is also the possibility of a failure in the off -gas collection system. A moderate amount of truck traffic would be required to take contaminated soils to off-site facilities.

Response Measure 3B: Excavation; On-Site, Ex-situ Anaerobic Biotreatment; Off-Site Landfilling/Incineration; and Capping; can be implemented in approximately 36 months and would require the most material handling and the longest on-site construction phase. Although the contaminant exposures can be reduced through the use of protective equipment, good construction practice and dust suppression, there is also the possibility of a failure in the off-gas collection system. A minimum amount of truck traffic would be required to take contaminated soils to off-site facilities.

Response Measure 4A: Excavation; Off-Site Low Temperature Thermal Desorption; Off-Site Landfilling/Incineration; can be implemented in approximately 8 months which would greatly reduce the short-term risks. Excavation would require handling of contaminated soils and dust generation, but these can be controlled through the use of protective equipment, good construction practice and dust suppression. A large amount of truck traffic would be required to take contaminated soils to off-site facilities.

Response Measure 4B: Excavation; Off-Site Low Temperature Thermal Desorption; Off-Site Landfilling and Incineration; Consolidation and Capping; can be implemented in approximately 10 months, which would help reduce the short-term risks. Excavation and construction of the cap would require

handling of contaminated soils and dust generation, but these can be controlled through the use of protective equipment, good construction practice and dust suppression. A moderate amount of truck traffic would be required to take contaminated soils to off-site facilities.

Response Measure 5A: Excavation; Off-Site Incineration; Off-Site Landfilling; can be implemented in approximately 6 months which would greatly reduce the short-term risks. Excavation would require handling of contaminated soils and dust generation, but these can be controlled through the use of protective equipment, good construction practice and dust suppression. A large amount of truck traffic would be required to take contaminated soils to off-site facilities.

Response Measure 5B: Excavation; Off-Site Incineration and Landfilling; and Consolidation and Capping; can be implemented in approximately 8 months which would help reduce the short term risks. Excavation and construction of the cap would require handling of contaminated soils and dust generation, but these can be controlled through the use of protective equipment, good construction practice and dust suppression. A moderate amount of truck traffic would be required to take contaminated soils to off-site facilities.

Reduction of Toxicity, Mobility or Volume Through Treatment

Response Measure 2: Selective Excavation, Consolidation, and Capping achieves risk reduction without treatment, entirely through a reduction in mobility of the contaminants: the toxicity and volume remain unchanged.

Response Measures 3A, 3B, 4A, 4B, 5A, and 5B: These responses all use some type of treatment to destroy the contaminants in the highly contaminated soils (those soils above the 1000 ppm TL) and use on-site capping or off-site landfilling to reduce the contaminant mobility of the remaining soils. There is no difference in the amount of material destroyed among these options.

Implementability

All of the services and materials needed to implement these response measures are readily available commercially. Each response measure utilizes standard technologies for excavation, capping and transportation of soils. With the exception of 3A and 3 (which need treatability studies to determine if they would work on the Site soils), all the response measures are technically feasible. However, Response Measures 3A and 3B will require an on-site treatability study (requiring about 12 months) , while Response Measures 4A and 4B require pilot scale treatability studies (requiring about 2 months) at selected off-site facilities to obtain design parameters for the full-scale system. Response Measures 3A and 3B have complex administrative issues because of the quantity of equipment that needs to be set up at the Site and the need to provide substantive compliance with State air emissions regulatory requirements. Response Measure 2 and 5b are easily implementable using standard excavation technology. Response Measure 5A is the easiest of the alternatives to implement.

Cost

The capital, operation and maintenance, and present worth costs are presented below for each response measure. Present worth costs for all the response measures were calculated assuming a 5% interest rat and a 30-year operation and maintenance period.

Capital costs for **Response Measure 2** are estimated to be $ 1,339,000. 30 year operation and maintenance costs are estimated to be $ 184,000. The total present worth is estimated to be $1,523,000.

Capital costs for **Response Measure 3A** are estimated to be between $3,024,000 and $5,113,000. 2 year operation and maintenance costs are estimated to be $22,000. The total present worth is estimated to be between $3,046,000 and $5,135,000.

Capital costs for **Response Measure 3B** are estimated to be between $2,414,000 and 4,177,000. 30 year operation and maintenance costs are estimated to be $236,000 The total present worth is estimated to be between $ 2,650,000 and $ 4,414,000.

Capital costs for **Response Measure 4A** are estimated to be between 2,621,000 to 4,679,000. 2 year operation and maintenance costs are estimated to be $ 22,000. The total present worth is estimated to be between $ 2,643,000 and $ 4,701,000.

Capital costs for **Response Measure 4B** are estimated to be between $2,148,000 and $3,830,000. 30 year operation and maintenance costs are estimated to be $

236,000. The total present worth is estimated to be between $ 2,384,000 and $ 4,066,000.

Capital costs for **Response Measure 5A** are estimated to be between $2,811,000 to $ 5,251,000. 2 year operation and maintenance costs are estimated to be $ 22,000. The total present worth is estimated to be between $2,833,000 to $ 5,273,000.

Capital costs for **Response Measure 5B** are estimated to be between $ 2,536,000 to $ 4,175,000. 30 year operation and maintenance costs are estimated to be $244,000. The total present worth is estimated to be between $ 2,780,000 to $ 4,419,000.

Community Acceptance

Community acceptance of the preferred response measure will be assessed in the Record of Decision following review of public comments received on the Investigation Report and the Proposed Plan.

PREFERRED RESPONSE MEASURE

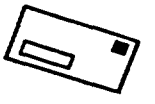
The preferred soil response measure, Response Measure 4A, provides for excavation and off-site treatment and/or disposal of approximately 13,100 tons of contaminated soils, followed by backfilling with clean fill and/or treated soils, topsoil and seeding. The preferred remedy would allow for future commercial use of the Site. This measure will require institutional controls to ensure that the future land use remains commercial.

EPA prefers Response Measure 4A over Response Measures 2, 3B, 4B and 5B because it would remove all contaminated soils from the property and not leave a cap that would further restrict use of the Site and require constant maintenance. Response Measure 3A relies on biotreatment technology that has not yet been proven effective on Site soils, and at best would require a long period of treatability testing and design. The cost for the preferred response measure is estimated to be between $ 2,642,802 and $ 4,701,021. Although the implementation time for Response Measure 4A is 2 months longer than Response Measure 5A, 4A would provide an equivalent level of protection at less than the cost of 5A which is estimated at between $2,833,209 to $ 5,273,084. The preferred response measure would also meet all ARARs.

EPA believes that the preferred response measure would provide the best balance of trade-offs among response measures with respect to the evaluating criteria. EPA believes that the preferred response measure would be protective of human health and the environment, would be cost effective, and would utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

NEXT STEPS

After EPA has presented the preferred response measure at the public meeting and has received any comments and questions during the public comment period, EPA will summarize the comments and provide its responses in a document called the "Responsiveness Summary." The Responsiveness Summary will be appended to the Record of Decision, which will describe the final response measure selected by EPA and provide EPA's rationale for that selection.



MAILING LIST ADDITIONS

If you know of someone who is not receiving information and would like to be placed on the mailing list for the Pulverizing Site, call Cecilia Echols at (212) 637-3678, e-mail her at echols.cecilia@epamail.epa.gov, or fill out and mail this form to:

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U.S. Environmental Protection Agency
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